

Work Order ID 110996

January-08-14 12:49:17 PM

110996

Page 1

Item ID: D4876-3 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Cargo Tube Cap Lug
 Start Date: 1/08/14 Start Qty: 12.00 ***12*** Cust Item ID:
 Required Date: 1/08/14 Req'd Qty: 12.00 ***12*** Customer:
 Reference:

Approvals: Process Plan: MLJ Date: 14-01-10 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--|----------------------|-----------------|--------|--------------|---------------|---------------|------------------|------------------|
| Draw Nbr | Revision Nbr | | | | | | | | |
| D4876 | <u>PCI</u> <u>C 4.01.13</u> | | | | | | | | |
| 100 | Cut blanks as per folio | 0.00 | | | | | | | |
| *100* | | | | | | | | | |
| Bandsaw | Memo | 0.00 | <u>28</u> | | | <u>12</u> | <u>0</u> | | |
| Jeaspa Bandsaw | CUT BLANK AT 1.300" | | <u>14-01-17</u> | | | | | | |
| 110 | | 0.00 | | | | | | | |
| *110* | HAAS CNC VERTICAL MACHINING #1 | | | | | <u>12</u> | | | <u>SL14-1-19</u> |
| HAAS 1 | Memo | 0.00 | | | | | | | |
| HAAS CNC vertical machine #1 | 1-Machine per folio FB198 DWG REV: <u>C</u> FOLIO REV: <u>AA</u> | | | | | | | | |
| | 2- deburr and break all sharp edges | | | | | | | | |

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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|--|--|---|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| Work Order: _____ Part No. _____ NCR No. _____ | DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/> | AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td style="width: 25%;">Skid-tube <input type="checkbox"/></td> <td style="width: 25%;">Crosstube <input type="checkbox"/></td> <td style="width: 25%;">Water Jet <input type="checkbox"/></td> <td style="width: 25%;">Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> | Skid-tube <input type="checkbox"/> | Crosstube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> | |
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| Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | | | | | | | | | | | | | | | |
| Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> | | | | | | | | | | | | | | | | |

| Root Cause | Date | Step | Qty | Description of work order update or non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---------------|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Design | | | | | | | | | |
| Doc/Data | | | | | | | | | |
| Equip/Tooling | | | | | | | | | |
| Handling/Pre | | | | | | | | | |
| Material | | | | | | | | | |
| Operator | | | | | | | | | |
| Offset/Setup | | | | | | | | | |
| Process | | | | | | | | | |
| Supplier | | | | | | | | | |
| Training | | | | | | | | | |
| Transport | | | | | | | | | |
| Unapproved | | | | | | | | | |

FAULT CATEGORY

| | | | |
|--|--|---|---|
| Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube | General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function | <input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence | <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other _____ _____ _____ |
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Work Order ID 110996

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110996

Page 2

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 Revision ID: Stop ***NS2***
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 Start Date: 1/08/14 Start Qty: 12.00 ***12*** Cust Item ID:
 Required Date: 1/08/14 Req'd Qty: 12.00 ***12*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 120 | QC2- Inspect parts off machine FAI/FAIB | 0.00 | | | | | | | |
| *120* | | | | | | 12 | 0 | | SL 14-1-19 |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |
| 130 | QC8- Inspect parts - second check | 0.00 | | | | | | | |
| *130* | | | | | | 12 | 0 | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |
| 140 | Identify as per dwg & Stock Location ST 126 | 0.00 | | | | | | | |
| *140* | | | | | | 12x | | 14-1-20 | |
| Packaging | Memo | 0.00 | | | | | | | |
| Packaging | | | | | | | | | |

DAS
26
9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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|--|--|---|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
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| Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> | | | | | | | | | | | | | | | | |

| Root Cause | Date | Step | Qty | Description of work order update or non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---------------|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Design | | | | | | | | | |
| Doc/Data | | | | | | | | | |
| Equip/Tooling | | | | | | | | | |
| Handling/Pre | | | | | | | | | |
| Material | | | | | | | | | |
| Operator | | | | | | | | | |
| Offset/Setup | | | | | | | | | |
| Process | | | | | | | | | |
| Supplier | | | | | | | | | |
| Training | | | | | | | | | |
| Transport | | | | | | | | | |
| Unapproved | | | | | | | | | |

FAULT CATEGORY

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|--|--|---|---|

January-08-14 12:49:17 PM

Item ID: D4876-3

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Cargo Tube Cap Lug

Stop *NS2*

Start Date: 1/08/14 **Start Qty:** 12.00

12

Cust Item ID:

Required Date: 1/08/14 **Req'd Qty:** 12.00

12

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/
Work Center ID

Operation Description

Set Up/ Run Hours

| Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|---------|--------|-----------|------------|------------|---------------|-------------|
|---------|--------|-----------|------------|------------|---------------|-------------|

150

QC21- Final Inspection - Work Order Release

0.00

150

QC

Memo

0.00

Quality Control

~~M~~ 14-01-22
~~M~~ 14-01-21

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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|--|--|--|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| Work Order: _____ Part No. _____ NCR No. _____ | DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/> | AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> | Skid-tube <input type="checkbox"/> | Crosstube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> | |
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| Root Cause | Date | Step | Qty | Description of work order update or non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---------------|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Design | | | | | | | | | |
| Doc/Data | | | | | | | | | |
| Equip/Tooling | | | | | | | | | |
| Handling/Pre | | | | | | | | | |
| Material | | | | | | | | | |
| Operator | | | | | | | | | |
| Offset/Setup | | | | | | | | | |
| Process | | | | | | | | | |
| Supplier | | | | | | | | | |
| Training | | | | | | | | | |
| Transport | | | | | | | | | |
| Unapproved | | | | | | | | | |

FAULT CATEGORY

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|--|--|---|---|

January-08-14 12:49:16 PM

Parent Item: **D4876-3**

Start Date: 1/08/14**Required Date:** 1/08/14

Parent Item Name: Cargo Tube Cap Lug

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP REV:A NEW ISSUE JFS 13/07/12 VERIFY BY: DD

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| M6061T6B1.500X02.000 6061-T6 Bar 1.50 x 2.00 | | Purchased | No | | | 100 | f | 42.0000 | 0.11 | 1.389474 | | | |

Location

Loc Qty

Loc Code

MAT004

42

122521

6

m126726

36

7517
1401-17

138 ft.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

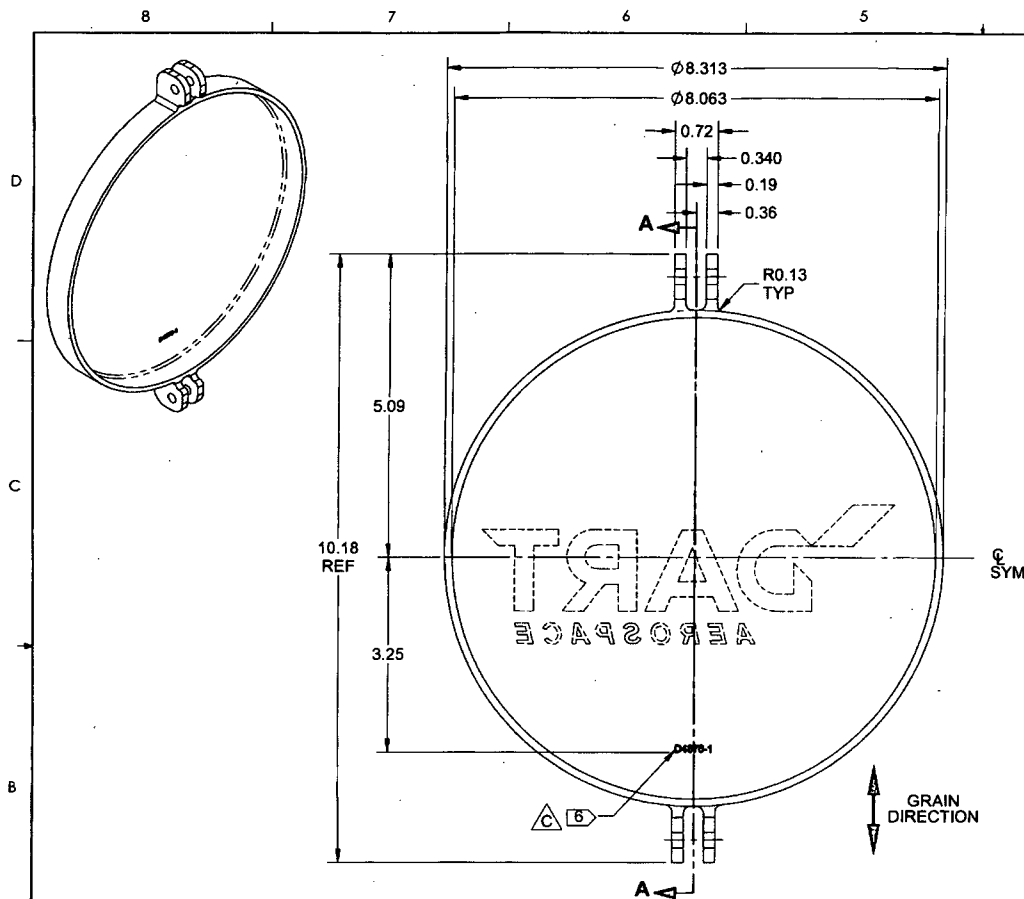
Work Order update only ☐

| | | | | | | | | | | | | | | | | | | |
|--|--|--|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
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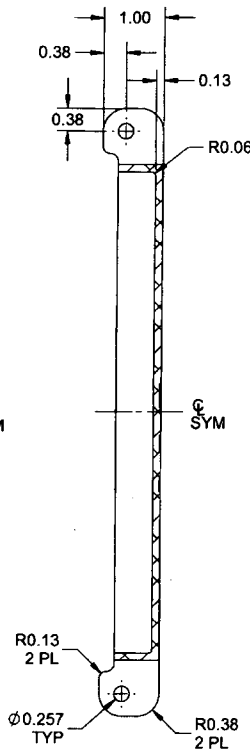
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| Training | | | | | | | | | |
| Transport | | | | | | | | | |
| Unapproved | | | | | | | | | |

FAULT CATEGORY

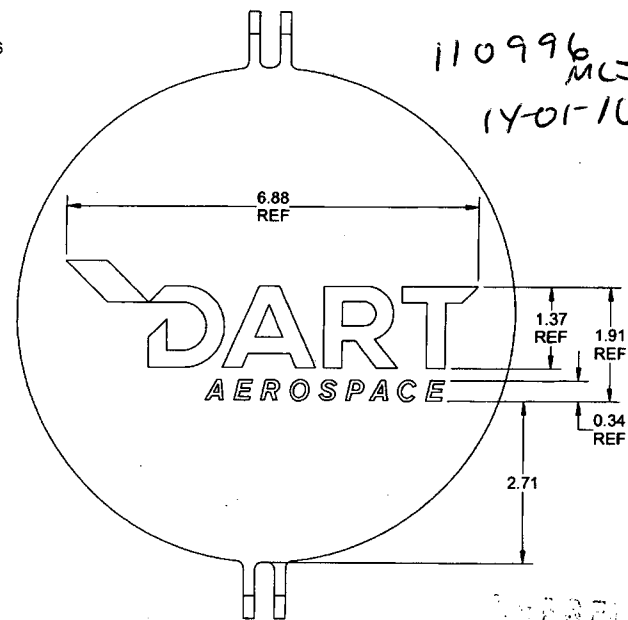
| | | | |
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|--|--|---|--|



D4876-1 CARGO TUBE CAP



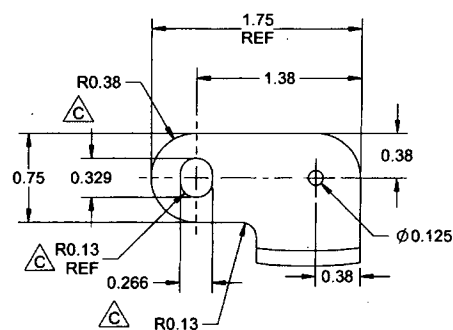
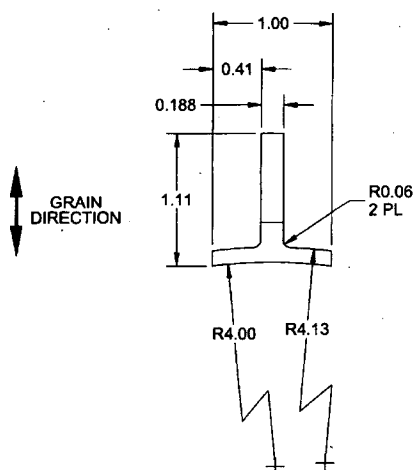
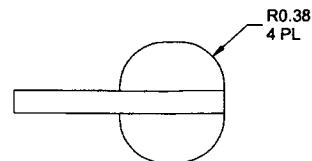
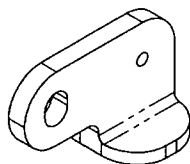
SECTION A-A



NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: ENGRAVE WITH DART P/N "D4876-1" PER QSI 044 6.3
APPLY BATCH NUMBER "B/N BXXXXX" PER QSI 044 6.1
ENGRAVE WITH DART LOGO IN INDICATED AREA
LETTERING HEIGHT APPROX AS SHOWN
LETTERING DEPTH 0.010-0.020 DEEP PER DART QSI 044 6.3
MINIMUM TOOL RAD 0.015
- 7) WEIGHT: 0.91 lbs

| C | B6-1 IDENT ADDED. C4-2 SLOT WAS Ø0.266 HOLE. CHANGED DUE TO OVALIZED CARGO TUBE. | AJS | 13.11.29 |
|------------|--|--|--------------|
| B | REDESIGN FOR 8" TUBE | AJS | 13.06.11 |
| A | NEW ISSUE | AJS | 13.06.04 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | AJS | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | AJS | | |
| CHECKED | | DRAWING NO. | REV. C |
| MFG. APPR. | | D4876 | SHEET 1 OF 2 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | CARGO TUBE CAP | NTS |
| DATE | 13.11.29 | <small>COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small> | |



D4876-3 CARGO TUBE CAP LUG

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.03 lbs

| | | | |
|------------|--------------------|--|--------------|
| DESIGN | AJS | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | AJS | | |
| CHECKED | <i>[Signature]</i> | DRAWING NO. | REV. C |
| MFG. APPR. | <i>[Signature]</i> | D4876 | SHEET 2 OF 2 |
| APPROVED | <i>[Signature]</i> | TITLE | SCALE |
| DE APPR. | <i>[Signature]</i> | CARGO TUBE CAP | NTS |
| DATE | 13.11.29 | COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMPILED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. | |

RELEASED
08 2014-01-03

| | | | |
|--|---------------|---------------------|---------|
| DART AEROSPACE LTD | | Work Order: | 110996 |
| Description: cargo tube cap lug | | Part Number: | D4876-3 |
| Inspection Dwg: D4876 | Rev: C | Page 1 of 1 | |

FIRST ARTICLE INSPECTION CHECKLIST

| Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|-------------------|-------------|------------------|--------|--------|----------------------|----------|
| 1.00 | + -030 | 1.000 | / | | Vern | SL-10 |
| .41 | + -030 | .404 | / | | - | |
| .188 | + -010 | .188 | / | | - | |
| 1.11 | + -030 | 1.114 | / | | H-G | |
| R4.0 | + -030 | 4.0 | / | | | |
| R.06 | + -030 | .062 | / | | | |
| | | | | | | |
| 1.75 | + -030 | 1.750 | / | | Vern | " |
| 1.38 | + -030 | 1.375 | / | | - | |
| R.38 | + -030 | .375 | / | | R-G | |
| .329 | + -010 | .328 | / | | Vern | |
| .75 | + -030 | .750 | / | | " | |
| R.13 | + -030 | .133 | / | | | |
| .266 | + -010 | .266 | / | | " | |
| R.13 | + -030 | .125 | / | | R-G | |
| .38 | + -030 | .375 | / | | Vern | |
| Ø.125 | +004 - .001 | .127 | / | | - | |
| .38 | + -030 | .375 | / | | - | |
| | | | | | | |
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|---------------------|---------|--------------------|--|------------------------------|--|
| Measured by: | SL | Audited by: | | Preliminary Approval: | |
| Date: | 14-1-19 | Date: | | Date: | |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|----------------------------|------------|----------|
| E | 10.04.14 | Added preliminary approval | KJ | |

10.04.15